

Application No. 10/737,272

REMARKS

In a Final Office Action dated May 17, 2005, claims 1-3, 5-11, 13-25 were rejected under 35 U.S.C 102(b) as being anticipated by Beroz et al. (U.S. Patent 6,361,959). Claims 26-29 were rejected under 35 U.S.C. 102(b) as being anticipated by DiStefano (U.S. patent 5,859,472). In response Applicant had a telephone interview with the Examiner on August 11, 2005.

Applicant appreciates the courtesy extended by the Examiner in the telephone interview. During the interview, Applicant pointed out that the Beroz reference is not a stressed metal spring. Applicant also pointed out that Beroz does not show in-plane curves and because of the way Beroz is formed, it's curves cannot be in a plane. Applicant also pointed out that Applicant has not had a chance to respond to the Beroz nor DiStefano references because this is the first time they have been presented by the Examiner. In the prior Office Action, besides formalities, almost all claims appeared allowable. In response, Examiner requested that Applicant present the arguments in writing for further consideration. Examiner also granted Applicant's request and agreed to withdraw the finality of the May 16, 2005 Office Action.

Applicant believes that Beroz is insufficient to present a prima facie case of obviousness for the following reasons. (1) Beroz does not describe using a stressed metal, in particular an internal stress gradient in the uplift portion that causes the uplift portion to curve out of the plane of the substrate (2) Beroz does not show an in-plane curve and (3) Beroz does not show a spring tip that is oriented in the direction of maximal curvature of the spring.

Beroz describes forming an interconnect by bonding a first end of an interconnect to a first substrate, and a second end of the interconnect to a second substrate and then moving the substrates apart to form the structures illustrated in Beroz. Beroz does not use an internal stress gradient formed in the metal as claimed. Instead, Beroz applies an external force. That Beroz is insufficient to render a prima facie case of obviousness with respect to claims 1 and 2.

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Even if Examiner believes that the use of stress metal is a limitation that can only be applied to a method (a belief with which Applicant's representative respectfully disagrees but Applicant has added a method claim to use the stressed metal limitation), the method of interconnect formation in Beroz has important consequences for the resulting interconnect structure of Beroz. A first consequence is that an in-plane curve will not result. In the interview, the Examiner submitted that Figures 9 and 10 show the curves in a plane that connects a first end 140 to a second end 138. However, Applicant points out that the pulling method of forming a Beroz interconnect will not result in an in plane curve, it will instead result in a structure that arcs up, arcs and then arcs down. Nevertheless, to further distinguish claim 1, Applicant has added the language that the in-plane curve is in a plane approximately parallel to the surface.

Finally, Applicant respectfully points out that Beroz does not disclose a tip oriented along a direction of maximal curvature of the spring. In fact, the tip of Beroz is affixed to a circuit element and as can be seen in Figures 9 and 10 of Beroz, the tip of Beroz is flat and has no curvature. Thus there cannot be a direction of curvature, much less a direction of "maximal curvature" that is perpendicular to the release line or to the lift line. Applicant has further added to several claims that the tip is oriented in a direction that is not parallel to the substrate plane (this limitation is shown in numerous figures including figures 10 and 14).

To further distinguish the claims, Applicant has added new claims 30 and 31. Claim 30 claims the described spring wherein the uplift portion includes at least one curve and the tip is oriented in a direction that is non-parallel with the substrate and where the direction of maximal curvature is perpendicular to the lift line. The tip in Beroz is in a plane that is parallel to the substrate plane. Claim 30 also claims the stress gradient which is not shown or suggested in Beroz. Claim 31 claims the method of forming the stressed metal spring and thus clearly should allow a stressed metal limitation. Applicant respectfully submits that neither claim is shown in the prior art.

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In view of the preceding amendments and remarks, Applicant respectfully submits that the claim as amended are allowable over the cited prior art reference, and allowance at Examiner's earliest convenience is hereby respectfully requested. In the event that the Examiner believes a teleconference would facilitate prosecution, Applicant respectfully requests that Examiner contact the undersigned.

Respectfully submitted,



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